Remarks

Claims 23-26, 28-33, 35-37 and new claim 48 are submitted for reconsideration. Although not discussed at the interview with the Examiners, to further distinguish the claimed invention from the cited art, claims 23, 25, 30 and 31 have been amended to indicate that the "organic particles" are "rubber particles." Basis for the term "rubber" may be found in the specification, for example, on page 11, lines 16 to 21. New claim 48 has been added. New claim 48 defines the invention in the same terms as claim 23 except the particle size range of the rubber particle has been included. Basis for the particle size range may be found, for example, on page 12 of the specification, lines 3-5.

Entry of the amendment to place the application in condition for allowance and/or reduce issues on appeal is respectfully requested.

Reconsideration of claims 23-26, 28-33, 35-37 and new claim 48 is respectively requested.

The non-elected claims have been cancelled, without prejudice, to the filing of a divisional application.

Finality of Rejection

It is noted in the Interview Summary supplied by the United States Patent and Trademark Office for the August 14, 2003 interview that the finality of the rejection will be withdrawn.

§ 103 Rejections

Claims 23-26, 28-33 and 35-37 were finally rejected under 35 U.S.C. § 103(a) as obvious over Beardsley, et al., US 5,849,051, in view of DeFilippi, US 5,580,770, and further in view of Recker, et al., US 5,627,222, as set forth in section 10 of the last Office Action. In making this rejection, the Examiner indicates that the primary reference, Beardsley, et al., meets the structural limitation set forth by applicant. The Office Action states that Beardsley, et al. teaches an abrasive foam article comprising a flexible resilient foam substrate having first and second surfaces, wherein at least one surface side further comprises a plurality of abrasive particles adhered to said surface with an adhesive binder. The Office Action goes on to state the particles are distributed in a uniform manner along the surface and a thin uniform coat of binder adhesive covers the abrasive particles. The Office Action asserts that it is proper to look to nonanalogous prior art to teach the claimed physical property features (i.e., glass transition temperature, Shore A and D hardness, or the aspect ratio). (Office Action, page 3.)

The Office Action admits that Beardsley, et al. is silent with respect to the glass transition temperature of said binders. Thus, the Office Action looks to "DeFilippi to evidence that the glass transition temperature is used to correlate the structure of the binder to its ability to function as an effective binder and that a binder having the claimed glass transition is known." (Office Action, page 3.)

With regard to the Shore A and D hardness and aspect ratio, the Office Action indicates that "Beardsley, et al. teaches the use of organic particles such as diamond, silicon carbide as well as less aggressive thermoplastic particles." (Office Action, the paragraph bridging pages 3 and 4.) The Office Action looks to Recker, et al. to "evidence that the rubber-comprising particles have low glass transitions [sic] temperatures and exhibit good adhesion, not to provide motivation of using less aggressive particles." (Office Action, page 4, lines 1-3.)

To these ends, the Office Action "maintains that the Shore A and D hardness, and the aspect ratio recited in claims 23, 25, 30 and 31, must be inherent to the functionalized rubber particles of Recker, et al." (Office Action, page 4, first full paragraph.)

As defined in claim 23, the present invention relates to a cleaning article comprising a foam pad having a first major surface, a plurality of rubber particles having a Shore A hardness less than 80, and binder on at least a portion of the first major surface of the foam pad. The binder has a T_g

in the range of 0°C to –70°C, binding the rubber particles, at least in part, to the first major surface. It is submitted that a binder with a T_g in the range of 0°C to –70°C would be soft and pliable.

Claim 31 further defines a cleaning article in a similar fashion as to that claimed in claim 23 which defines the rubber particles as having a hardness of at least a Shore A hardness value in the range of 80 to 100 or a Shore D hardness in the range of 30 to 50.

While not agreeing that DeFilippi and Recker, et al. are analogous art with respect to the instant rejection, even if they were, the proposed combination of Beardsley, et al., DeFilippi and Recker, et al. fails to set forth a proper prima facie rejection.

Beardsley, et al. report abrasive foam articles which comprise conventional open cell foam (column 2, lines 42-46) and conventional abrasive particles (column 10, lines 15-27), most of which are mineral-based abrasive particles, which may include softer, less aggressive materials such as thermosetting or thermoplastic polymer particles, as well as crushed natural products such as nutshells, for example (column 10, lines 34-37). Beardsley, et al.'s abrasive particles are adhered to the foam substrate with a "hard, non-elastic adhesive" (column 2, lines 47-49 underlining added).

DeFilippi reports a biologically active support for removing pollutants from a fluid stream such as waste water. DeFilippi provides "a support material having an effective amount of active adsorbent on a substrate for use in a biological waste treatment reactor which achieves government mandated level of pollutant effluent and an ability to resist upset of the treatment system" (column 3, lines 60-65). The biomass supports of DeFilippi's invention comprise "a support on the surface of which is firmly adhered an adsorbent" (column 3, lines 65-67). The support structure may be a porous structure such as an open-celled foam (column 4, lines 1-2). DeFilippi utilizes a binder material to adhere the adsorbent material to the surface of the support structure. With regards to the binder material, DeFilippi selects his binder material on the basis on T_g. In that regard, he specifies as follows:

> Presently, the T_g, glass transition temperature, is known to be correlative to free volume (for discussion of free volume and T_g, see Stephen L. Rosen *Fundamental Principles of Polymeric Materials*, Chap. 9, "Transitions in Polymers", pp. 89-95, 1982). Rosen theorizes that the more free volume in a polymer, the lower the T_g. Therein, T_g is used to correlate the structure of the binder to its ability to function as an effective binder in a biomass support system.

> In preferred embodiments of this invention an effective binder has a T_g less than or equal to about 100°C. In more preferred embodiments, the effective binder has a T_g less than or equal to about 50°C. In further preferred embodiments, an effective binder has a T_g less than or equal to about 30°C. In particularly preferred embodiments, an effective binder has a T_g less than or equal to 20°C. In more particularly preferred embodiments, an effective binder has a T_g less than or equal to about 0°C. In alternative embodiments, the preferred binder has a T_g of less than or equal to about 10°C, with a binder of choice having a T_g of less than or equal to about 25°C. (Column 8, lines 30-40 underlining added.)

Thus, DeFilippi's selection of a binder is not to provide the cleaning article, but instead to provide effective bonding of adsorbent material on his biologically active support for removing pollutants.

Further, one skilled in the art would not look to DeFilippi to modify the disclosure of Beardsley, et al. since Beardsley, et al. have specific requirements for their binder material since it is understood that they would require a "hard, non-elastic adhesive" (column 2, lines 27-32 and 47-49 and column 3, lines 37-39). Altering Beardsley, et al.'s invention by utilizing the binder material suggested by DeFilippi would be contrary to the teaching of Beardsley, et al.

Recker, et al. fail to overcome the deficiency of Beardsley, et al. or DeFilippi. There is no suggestion to one skilled in the art to look to the disclosure of Recker, et al. or to the disclosure of DeFilippi to modify the abrasive foam pad disclosed by Beardsley, et al. Since these three references are from entirely different art areas, it is only through the utilization of inappropriate hindsight reasoning, the Office Action selects relevant parts of the disclosures of DeFilippi and Recker, et al. to modify the disclosure of Beardsley, et al. Such hindsight reasoning is clearly inappropriate since one skilled in the art would not modify Beardsley, et al. according to the teaching of the DeFilippi or Recker, et al. references, particularly since it is understood that Beardsley, et al. have very specific requirements for a "hard, non-elastic adhesive." (Column 2, lines 47-49.)

Interview Summary

The undersigned acknowledges, with appreciation, the in-person interview granted by Examiners Lynda Salvatore and Cherly Juska on August 14, 2003. The undersigned argued that the Office Action did not set forth a prima facie obviousness rejection utilizing the Beardsley, et al., DeFilippi, and Recker, et al. references. It was submitted that it is not clear why one of ordinary skill in the art would select DeFilippi and Recker, et al. and try to combine them with Beardsley, et al. absent the inappropriate use of hindsight. In addition, it was submitted that DeFilippi and Recker, et al. were non-analogous art. Further, it was argued that even if DeFilippi were analogous art, it is unclear how Beardsley, et al. could be properly modified with DeFilippi given that for Beardsley, et al., for example, it is understood that Beardsley et al. requires "hard non-elastic adhesive" (see, e.g., Column 2, lines 27-32 and 49, and column 3, lines 37-39). In addition, it was argued that since the rejection was based on the combination of Beardsley, et al., DeFilippi, and Recker, et al. and the combination of Beardsley, et al. and DeFilippi is improper, the rejection based on Beardsley, et al., DeFilippi, and Recker, et al., as set forth in the Office Action, is improper.

The Examiners agreed that the arguments overcame the rejection based on Beardsley, et al., DeFilippi, and Recker, et al. The Examiners also indicated that if they believed a new rejection should be made, they would reopen prosecution.

Finally, the Examiners stated they were re-reviewing PCT No. WO 95/22434, and agreed to list on a PTO-892 form, the "X" references cited on the search report for such PCT publication.

It is submitted that the claims are in condition for allowance and such action is accordingly earnestly solicited.

Respectfully submitted,

August 26, 2003
Date

By: _____
Gregory D. Allen, Reg. No.: 35,048
Telephone No.: (651) 736-0641

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833